

CERTIFICATE OF ELECTRONIC TRANSMISSION

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Gustavo Siller, Jr., Reg. No. 32,305

Our Case No. 12580-4137  
(Client Ref. No. F03-423US001)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Sunghoe Yoon )  
Serial No. 10/748,006 )  
Filing Date: December 29, 2003 ) Examiner Zhi Qiang Qi  
For COATING TYPE OPTICAL FILM, ) Group Art Unit No. 2871  
FABRICATION METHOD )  
THEREOF AND LIQUID CRYSTAL )  
DISPLAY USING THE OPTICAL )  
FILM )

**AMENDMENT**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This communication is in response to the Final Office Action mailed January 18, 2006. Applicants respectfully request that the Examiner reconsider the rejections to this application in view of the following remarks.

The **Listing of Claims** begins on page 2.

**Remarks** begin on page 7.

**In the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1. (Currently amended) A liquid crystal display comprising:

a liquid crystal panel having an upper plate, a lower plate and liquid crystal injected between the upper plate and the lower plate;

a polarizing plate disposed on the liquid crystal panel; and

an optical film containing a phase difference film and a linear polarizer contacting the phase difference film, wherein

the phase difference film and the linear polarizer contacting the phase difference film transmit light to the liquid crystal panel, the linear polarizer having has a light transmittance axis perpendicular to a light transmittance axis of the polarizing plate, and the optical film is positioned at a bottom surface of the liquid crystal panel.

2. (Currently amended) A coating type optical film comprising:

a circular polarizer containing cholesteric liquid crystal;

an adhesive layer formed on the circular polarizer;

a phase difference film formed on the adhesive layer; and

a linear polarizer directly coated on the phase difference film,

wherein the linear polarizer directly coated on the phase difference film transmits light to a liquid crystal panel.

3. (Original) The coating type optical film according to claim 2, further comprising a compensation film formed between the phase difference film and the circular polarizer.

4. (Original) The coating type optical film according to claim 2, wherein the linear polarizer comprises a lyotropic liquid crystal.

5. (Original) The coating type optical film according to claim 4, wherein the lyotropic liquid crystal contains dye or pigment.

6. (Original) The coating type optical film according to claim 2, wherein the optical film has a thickness of at most about 200  $\mu\text{m}$ .

7. (Original) The coating type optical film according to claim 2, wherein the linear polarizer has a thickness of a few  $\mu\text{m}$ .

8. (Withdrawn) A coating type optical film comprising:

an interference type linear polarizer; and

a linear polarizer directly coated on the interference type linear polarizer.

9. (Withdrawn) The coating type optical film according to claim 8, wherein the linear polarizer comprises a lyotropic liquid crystal.

10. (Withdrawn) The coating type optical film according to claim 9, wherein the lyotropic liquid crystal contains dye or pigment.

11. (Withdrawn) The coating type optical film according to claim 8, wherein the optical film has a thickness of at most about 200  $\mu\text{m}$ .

12. (Withdrawn) The coating type optical film according to claim 8, wherein the linear polarizer has a thickness of a few  $\mu\text{m}$ .

13. (Currently amended) A method for fabricating a coating type optical film, comprising:

(a) forming a circular polarizer containing cholesteric liquid crystal on a transparent substrate;

(b) forming an adhesive layer on the circular polarizer;

(c) forming a phase difference film on the adhesive layer; and

(d) forming a linear polarizer by directly coating liquid crystal on the phase difference film,

wherein the linear polarizer formed by directly coating liquid crystal on the phase difference film transmits light to a liquid crystal panel.

14. (Original) The method according to claim 13, further comprising:

(e) after (b), forming a compensation film; and

(f) forming another adhesive layer on the compensation film.

15. (Original) The method according to claim 13, wherein the liquid crystal is coated by a method selected from the group consisting of a bar coating method, a knife coating method and a slit-die coating method.

16. (Original) The method according to claim 13, wherein the coated liquid crystal comprises a lyotropic liquid crystal.

17. (Original) The method according to claim 16, wherein the lyotropic liquid crystal contains dye or pigment.

18. (Original) The method according to claim 13, wherein the linear polarizer has an E-mode polarization.

19. (Original) The method according to claim 13, wherein the optical film has a thickness of at most about 200  $\mu\text{m}$ .

20. (Original) The method according to claim 13, wherein the linear polarizer has a thickness of a few  $\mu\text{m}$ .

21. (Withdrawn) A method for fabricating a coating type optical film, comprising:

(a) preparing an interference type linear polarizer; and

(b) forming a linear polarizer by directly coating liquid crystal on the interference type linear polarizer.

22. (Withdrawn) The method according to claim 21, wherein the liquid crystal is coated by a method selected from the group consisting of a bar coating method, a knife coating method and a slit-die coating method.

23. (Withdrawn) The method according to claim 21, wherein the coated liquid crystal comprises a lyotropic liquid crystal.

24. (Withdrawn) The method according to claim 23, wherein the lyotropic liquid crystal includes dye or pigment.

25. (Withdrawn) The method according to claim 21, wherein the linear polarizer has an E-mode polarization.

26. (Withdrawn) The method according to claim 21, wherein the optical film has a thickness of at most about 200  $\mu\text{m}$ .

27. (Withdrawn) The method according to claim 21, wherein the linear polarizer has a thickness of a few  $\mu\text{m}$ .

28. (Withdrawn) A coating type optical film comprising:

a circular polarizer containing cholesteric liquid crystal;

an adhesive layer formed on the circular polarizer;

a phase difference film formed on the adhesive layer; and

a linear polarizer directly coated on a substrate adhered to a top of the phase difference film.

29. (Withdrawn) The coating type optical film according to claim 28, wherein the linear polarizer comprises a lyotropic liquid crystal.

30. (Withdrawn) The coating type optical film according to claim 29, wherein the lyotropic liquid crystal contains dye or pigment.

31. (Withdrawn) The coating type optical film according to claim 28, wherein the optical film has a thickness of at most about 200  $\mu\text{m}$ .

32. (Withdrawn) The coating type optical film according to claim 28, wherein the linear polarizer has a thickness of a few  $\mu\text{m}$ .

33. (Withdrawn) A coating type optical film comprising:

an interference type linear polarizer; and

a linear polarizer directly coated on a substrate adhered to a top of the interference type linear polarizer.

34. (Withdrawn) The coating type optical film according to claim 33, wherein the linear polarizer comprises a lyotropic liquid crystal.

35. (Withdrawn) The coating type optical film according to claim 34, wherein the lyotropic liquid crystal contains dye or pigment.

36. (Withdrawn) The coating type optical film according to claim 33, wherein the optical film has a thickness of at most about 200  $\mu\text{m}$ .

37. (Withdrawn) The coating type optical film according to claim 33, wherein the linear polarizer has a thickness of a few  $\mu\text{m}$ .

## REMARKS

Claims 1-7 and 13-20 are pending. Claims 1, 2, and 13 have been amended to include the limitation that the linear polarizer directly coated on the phase difference film transmits light to a liquid crystal panel, as supported in the specification at least in Fig. 3 and in paragraphs [0048], [0049] and [0050].

### Rejections Under 35 U.S.C. § 103

The Examiner asserted that claims 1-3, 6-7, 13-14, and 19-20 are unpatentable over AAPA in view of U.S. 6,641,874 (Kuntz et al.; "Kuntz") under 35 U.S.C. § 103. Applicants respectfully disagree, at least in view of the amendments herein to independent claims 1, 2, and 13.

The present application relates to a transmission type liquid crystal display (LCD). A problem to be solved in the present application is inadequate transmission of light through the optical film to the liquid crystal panel. As one approach to solving this problem, the present application describes and the claims require a linear polarizer directly coated on the phase difference film. As amended herein, the claims also require that the linear polarizer directly coated on the phase difference film transmits light to a liquid crystal panel.

In contrast, the reference cited by the Examiner, Kuntz, teaches a multilayer reflective film for use in "cosmetic, decorative, or security applications." The reflective film of Kuntz selectively reflects light and produces a phase shift to obtain "particularly striking angle dependent color effects" that may be exploited in "inks or lacquers for decorative use like e.g. for car bodies, or security uses like non-forgeable markings on banknotes or documents of value." (col. 1, lines 11-12, 32-36, and 55-64) Kuntz does not teach or suggest use of the multilayer reflective film to transmit light to a liquid crystal display.

Furthermore, the Examiner has provided no motivation to combine the multilayer reflective film of Kuntz with the optical film of AAPA. The problem to be solved in the present application is not producing "particularly striking angle dependent color effects,"

as taught by Kuntz and as suggested by the Examiner. The Examiner has again erroneously stated that "the skilled in the art would be motivated for enhancing the color effect such as improving the viewing angle dependent color effect..." In fact, as pointed out in Applicants' previous response, such viewing angle dependent color effects are undesirable in the art of liquid crystal displays.

As explained above, the problem to be solved by the Applicants is enhancing the transmission of incident light through the optical film to produce a high brightness LCD. There is no suggestion or teaching in Kuntz that the transmission of light may be increased by combining the directly coated linear polarizer/QWF of Kuntz with the optical film of AAPA. Indeed, there is no teaching in Kuntz whatsoever of improving the brightness of light transmitted through optical films.

The references cited by the Examiner do not teach or suggest each and every element of the claims. Furthermore, the Examiner has not provided a motivation to combine reference teachings. For at least these reasons, the Examiner has not established a *prima facie* case of obviousness. Applicants respectfully request that the rejections of claims 2-3, 6-7, 13-14, and 19-20 under 35 U.S.C. § 103 be withdrawn.

The Examiner asserted that claims 4-5 and 16-17 are unpatentable over AAPA and Kuntz as applied to claims 1-3, 6-7, 13-14, and 19-20, and further in view of U.S. 6,882,386 B2 (Moon et al.) under 35 U.S.C. § 103.

The Examiner also asserted that claim 15 is unpatentable over AAPA and Kuntz as applied to claims 1-3, 6-7, 13-14, and 19-20 above, and further in view of U.S. 5,110,623 (Yuasa et al.).

The Examiner also asserted that claim 18 is unpatentable over AAPA and Kuntz as applied to claims 1-3, 6-7, 13-14, and 19-20 above, and further in view of U.S. 6,879,356 (Hsieh et al.).

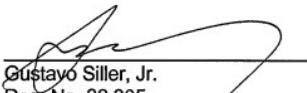
Applicants respectfully disagree, at least in light of the claim amendments and remarks made above. Per the preceding arguments, the Examiner has not established a *prima facie* case of obviousness to support a 35 U.S.C. § 103 rejection of claims 1, 2 and 13. Claims 4-5 are dependent on claim 2, and claims 16-17, 15, and 18 are

dependent on claim 13. Therefore, Applicants respectfully request that the rejections of claims 4-5 and 16-17, claim 15, and claim 18 under 35 U.S.C. § 103 be withdrawn.

**Summary**

Applicants believe that currently pending claims 1-7 and 13-20 are in condition for allowance. The Examiner is invited to contact the undersigned attorney for the Applicants via telephone if such communication would expedite allowance of this application.

Respectfully submitted,



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